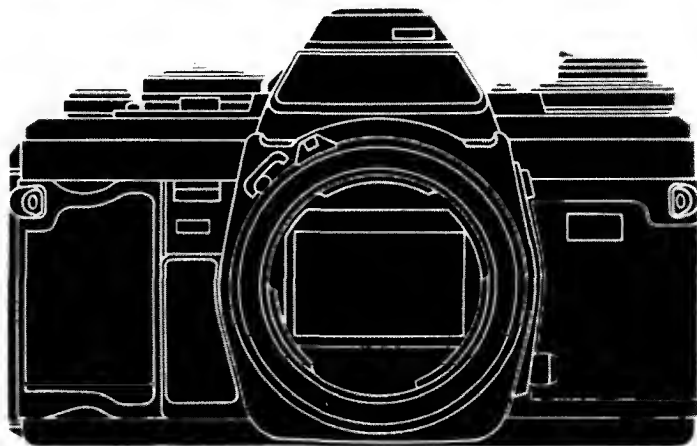




# X-700

INSTRUCTION MANUAL

E



Before using your camera for the first time, study this manual carefully all the way through — or at least all the sections covering your photographic needs. As you read, attach a lens, load batteries, turn the main switch on, and handle your X-700 to acquaint yourself with its parts and features. Then load it with film and proceed to actual picture taking. In this way you can take good photos and begin to realize the broad potential of your X-700 right from the start.

To obtain many years of service from your X-700, be sure to read and follow the precautions given on page 8 and elsewhere. Keep this manual for reference later as necessary.



Your Minolta X-700, the state-of-the-art SLR camera at the center of the Minolta Program System, offers you the focus-and-shoot simplicity of programmed auto-exposure (AE) control: Both aperture and shutter speed are automatically set over a wide range by the camera, with continuous viewfinder LED readout of speeds being set. The program is designed to maintain fastest practicable speeds as light dims, then give audible beeps, if desired, to guard against blur from subject/camera-movement, making the X-700 ideal if you're starting out in photography or if you want full program automation for ease of use or fast-breaking action.

The X-700's aperture-priority AE mode lets you control the depth of field but still maintain AE control of stepless shutter speeds fine-tuned for proper exposure with light metered up to the instant of exposure. This mode is excellent for AE photography with the wide range of Minolta SLR system lenses and accessories available, including mirror lenses and close-up bellows — not possible with shutter-priority AE systems. For full creative flexibility, aperture and shutter can be set independently in any combination in the X-700's metered/full-manual mode.

Other handy features of your X-700 include: touch-switch metering that keeps the LEDs on for 15 seconds after you first touch the operating button; AE lock for holding adjusted-framing meter readings; +/- 2EV stops' exposure adjustment with LED indicator in finder; self-timer with triple-rate visual/audible indications; flash-ready and Flash Distance Checker (FDC) indications in finder; split-image microprism spot and Acute Matte focusing screen; integral front and back grips for surer holding; Safe Load Signal; and a new easy-load take-up spool.

A programmed autoflash, multi-function back, and quartz data back (see pages 53 to 55) complete the Minolta Program System; also available are a new wireless controller, a motor drive and auto winder, and a broad range of other SLR system accessories.

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## NAMES OF PARTS/MAIN FEATURES

### Exposure-adjustment control

2 EV stops continuous adjustment over or under normal exposure, with LED indicator in viewfinder

### Mode/shutter-speed selector

P: Programmed AE

A: Aperture-priority AE

1-1000: Stepped shutter speeds for metered/full manual

B: Long ("bulb") exposures

### Operating button

"Soft touch" electromagnetic release; locks when battery power too low

"Touch switch" metering with 15-sec. hold of LED display

### Back-cover release knob

### Main switch

### Safe Load Signal

Monitors correct film advance

### Rewind crank

### Frame counter

### P/A-lock release

### Film-speed ring

### Film-speed window

### Exposure-adjustment control

release

### Flash/camera-control contacts

For dedicated programmed auto-flash and X-series autoflashes

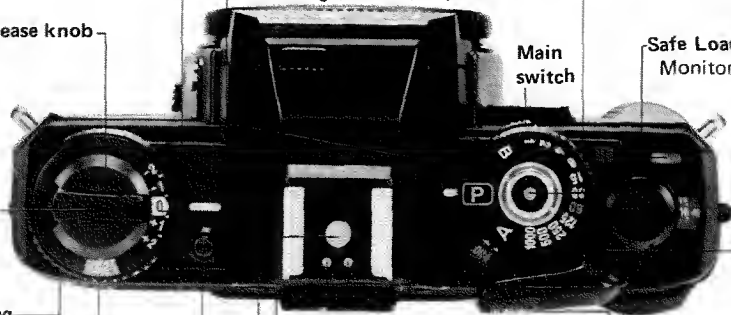
### Sync contact

### Film-advance lever

Smooth 130° advance stroke after 30° unengaged movement

### Main-switch position indicator

OFF, ON, ON » (audible slow-shutter-speed warning and self-timer beeps)



**AE lock/self-timer switch**

- AE lock for holding close-up or adjusted-viewing meter readings
- Electronic self-timer with triple-rate blinking LED and optional audible beeps

**Front grip**

Integral front and back grips giving camera surer hold

**Sync terminal**

**Bayonet lens mount**

New integrally lubricated stainless-steel mount offers greater durability and smoother lens changing; accepts virtually all Minolta SLR interchangeable lenses and accessories

**MD coupler**

**MC coupler**

**Lens-mounting index**

**Lens-release button**

**Mirror**

Specially coated to make viewfinder 11% brighter

**Strap eyelet**

**Shutter-release socket**

**Diaphragm-control lever**

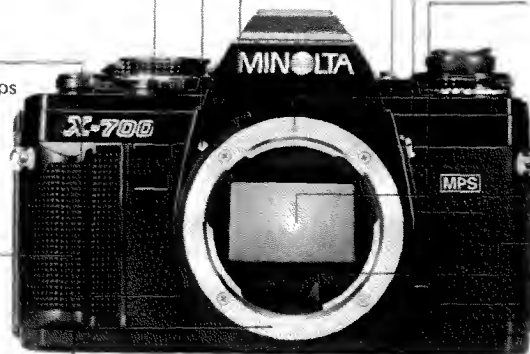
**Preview button**

Easy-to-use spring-loaded button for previewing depth of field

**Not visible:**

- Silicon photocell atop pentaprism for full-aperture metering for viewfinder LED display, and for "final check" stop-down metering

- Second silicon photocell in mirror compartment for Direct Autoflash Metering with PX-series Auto Electroflashes



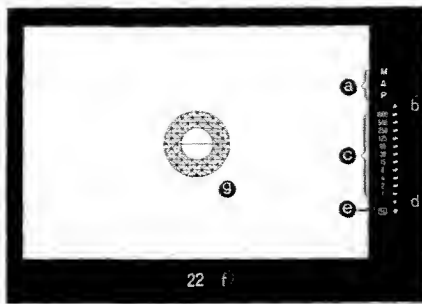
**a Mode indicators**

- M: Metered manual
- A: Aperture-priority AE
- P: Programmed AE  
(blinks if lens not set  
at minimum aperture  
or non-MD lens in use)

**b Over-range LED**

**c Shutter-speed scale/LEDs**

- LED indicates stepless speed set by camera in P and A modes
- LED indicates stepped speed recommended in M mode
- "60" LED blinks at 2Hz as flash-ready indicator with PX- and X-series Auto Electro-flashes
- "60" LED blinks at 8Hz as flash-distance checker (FDC) with PX-series Auto Electro-flashes



**d Under-range LED**

**e Exposure-adjustment LED**

**f Aperture setting**

**g Focusing screen**

Split-image spot, micropism band, and Acute Matte field; exchangeable with eight other screens at authorized Minolta service facilities

**a Focusing grip**

**b Distance scale**

**c Depth-of-field scale**

**d Aperture ring/scale**

**e Mounting index**

**f Minimum-aperture lock**

Prevents accidental movement of aperture ring in P mode

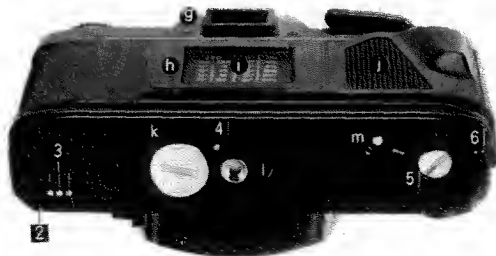
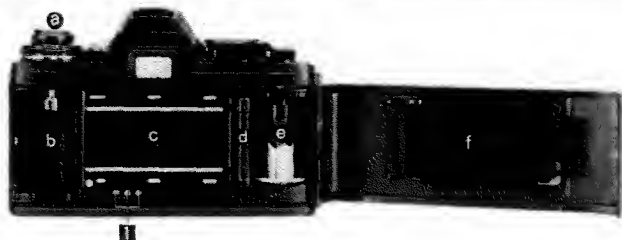
**g Diaphragm-control pin**



Lens shown: 50mm f/1.7 MD



- Ⓐ Back-cover release knob
- Ⓑ Film-cartridge chamber
- Ⓒ Shutter curtain  
Horizontal-traverse focal-plane  
type
- Ⓓ Sprocket
- Ⓔ Take-up spool
- Ⓕ Pressure plate
- Ⓖ Eyepiece frame/eyepiece
- Ⓗ Memo holder
- Ⓘ ISO (DIN-ASA) table
- Ⓢ Back grip
- Ⓚ Battery-chamber cover
- Ⓛ Tripod socket
- Ⓜ Rewind release



#### Accessory connections:

- 1 Contact terminals for camera control by Multi-Function Back and data-imprint control with Multi-Function Back or Quartz Data Back 1
- 2 Motor-drive guide socket
- 3 Motor-drive contacts
- 4 Winder contact
- 5 Winder/motor-drive coupler
- 6 Winder/motor-drive guide socket

## TAKING CARE OF YOUR X-700

Your Minolta X-700 is a high-precision instrument designed to give many years of trouble-free picture taking if used and cared for properly. The precautions you should follow for keeping the camera in good operating condition are given below and at various places throughout the text.

- Always keep your camera in its case with the lens capped when not in use, or with a body cap on when a lens is not attached.
- No part of the X-700 should be forced at any time. If operation is not as you think it should be, carefully reread the applicable instructions or consult an authorized Minolta service facility.
- Never subject your camera to shock, high heat and/or humidity, water, or harmful chemicals. Be particularly careful not to leave it in the glove compartment or other places in motor vehicles where it may be subject to high temperatures.
- Never lubricate any part of the body or lens.
- Never touch the shutter curtains or the front inside part of the body with fingers or other objects or blow against them, as doing so might damage the alignment and movement of either the curtains or mirror.

- External camera and lens barrel — but not glass — surfaces should be wiped with a soft, silicone-treated cloth now and then, especially after using the camera near salt water.
- It is recommended to have your camera cleaned once per year at an authorized Minolta service facility.

Lens-care instructions are given on pages 10 and 11. If you will not be using your camera for an extended period, see the storage instructions at the back of the manual.

If you have questions concerning operation of your camera or about photography, feel free to contact your local Minolta agent or distributor by writing one of the offices listed inside the back cover.

### CAUTION

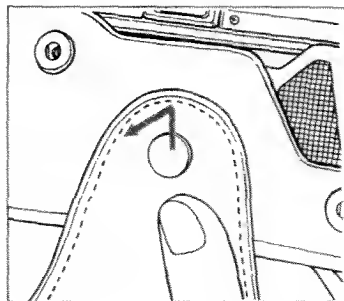
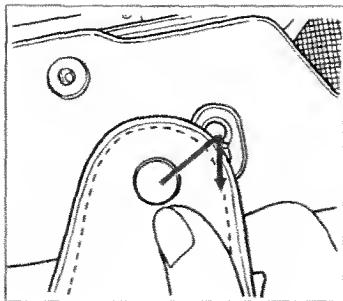
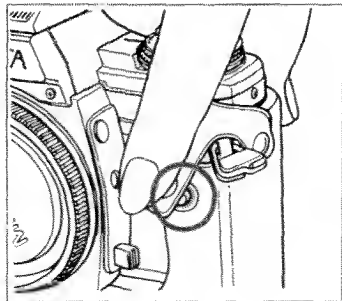
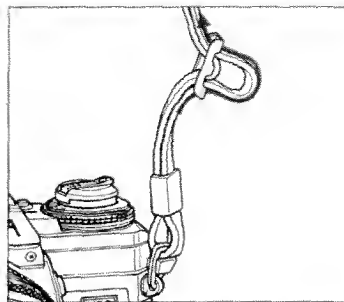
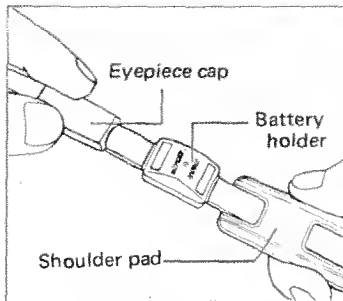
- Before using lenses, flashes, or other accessories made by companies other than Minolta, attach them to the camera to make sure they function properly and take test photographs if necessary.

### Strap and case

The strap (provided with camera) and case (sold separately) should be attached as shown to keep your camera handy for use and to protect it from being dropped or bumped.

#### NOTE

- The protective plastic film on the camera's base can be removed if desired.



## PREPARING TO TAKE PICTURES

The next four sections cover things you must do to prepare your camera for taking pictures:

- Attach lens (at right).
- Insert batteries and turn main switch on (pp. 12 and 13).
- Set film speed (p. 16).
- Load camera with film (pp. 17 to 20).

You must always install batteries properly and turn on the main switch before loading film; the order of other steps may vary.

Instructions for rewinding and unloading film are also given in this part. We recommend reading them before starting to use your camera, so that you will be sure what to do when you come to the end of the film.

## MOUNTING AND CARE OF LENSES



### Body and lens caps

Remove body and lens caps as shown above.

### CAUTIONS

- Always cap the rear end of the lens and the lens mount of the camera when the lens is not attached, and the front of the lens when the camera is not in use.



- To prevent damage to the control pins, never set a lens with its rear end down unless a rear lens cap is on.
- If it is necessary to set an uncapped lens with its front end down, do so on a smooth surface. Fisheye lenses should always be capped before being placed front end down.
- Keep lenses, properly capped front and rear, in their cases when not in use.



#### **To attach lenses**

After removing the body cap and rear lens cap, align the red mounting index on the lens barrel with the red index on the camera's lens mount, insert the lens bayonet into the socket, then turn the lens clockwise until it locks into place with a click.



#### **To remove lenses**

While pushing the lens-release button, turn the lens counterclockwise as far as it will go, then lift it out of the mount.

#### **CAUTION**

- Be careful not to touch anything inside the camera when attaching or removing lenses.

#### **Care of glass surfaces**

- Never touch lens or eyepiece surfaces with fingers or other objects. If necessary, remove loose matter with a blower brush. Use special photographic lens tissue or a soft, clean cloth to remove smudges or fingerprints with a gentle circular motion. Only if absolutely necessary, the tissue may be moistened very slightly with not more than one drop of a satisfactory quick-evaporating fluid cleaner specially compounded for photographic lenses. Such fluids must never be dropped directly on the glass surface.

- Never lift the mirror or touch its surface, as doing so might damage the alignment. Small smudges or fingerprints on the mirror will not affect the meter reading or image quality; if they are very annoying, have the camera cleaned at an authorized Minolta service facility.

## BATTERIES AND POWER

### Batteries

For operation of the X-700's circuitry and shutter, use one of the following types of batteries:

- Two 1.55v silver-oxide (SR44: Eveready S-76, EPX-76, or equiv.)
- Two 1.5v alkaline-manganese (LR44: Eveready A-76 or equiv.)
- One 3v lithium (CR-1/3N)—See note on p. 15.

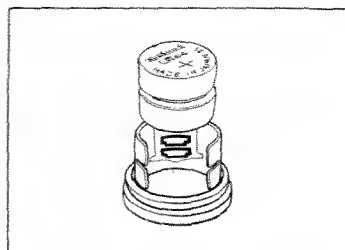
### CAUTIONS

- Never use 1.35v mercury batteries (MR44: Eveready EPX-675 or equiv.), which have a similar shape and size.
- To avoid battery leakage or bursting, do not mix batteries of different types, brands, or ages.
- Used batteries should not be disposed of in fire.

**WARNING:** Keep batteries away from young children.



1. Unscrew counterclockwise and remove the battery-chamber cover on the camera bottom.



2. After wiping the terminals with a clean, dry cloth, hold the batteries by their edges and insert them plus (+) side out into the sleeve on the inside of the cover.



3. Replace the cover and screw it in clockwise as far as it will go.



#### Main switch

For the camera's circuitry and shutter to operate, the main switch must be set at either "ON" or "ON $\frac{1}{2}$ ". The latter position should be used when you want audible beeps during self-timer operation or an audible warning whenever the shutter speed set or recommended by the camera is 1/30 sec. or slower. (For the slow-shutter-speed warning to function, the operating button must be touched or slightly pressed.)

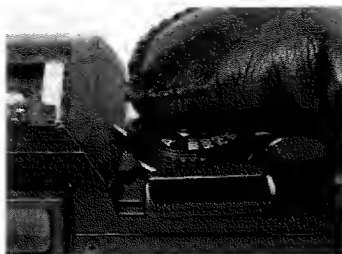


To prevent accidental exposures and battery drain, move the main switch to "OFF" when you are done taking pictures. (When the switch is left on, however, battery drain occurs only if the operating button is touched, so you may want to leave it on to avoid missing unexpected shots.)



#### **Operating button**

Touching the operating button in the center of the mode/shutter-speed selector activates the camera's meter, viewfinder LED display, and exposure-control system. If proper contact is not possible (e.g., in cold weather, when fingers are excessively dry, or when wearing gloves), press the button slightly. The shutter is released when the operating button is pressed all the way down.



For easier operation of other controls while viewing through the finder, the circuits will remain on for 15 sec. after you first touch the button.

#### **NOTE**

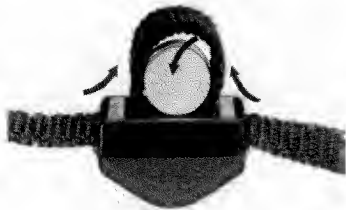
- If the operating button becomes dirty or greasy, turn off the main switch and wipe the button with a clean, dry cloth.

#### **Automatic battery check and shutter lock**

If any LED in the viewfinder lights up when the main switch is on and the operating button is touched or slightly pressed, the batteries are inserted correctly and have sufficient power for operation of the camera.

When battery power decreases to a point almost insufficient for camera operation, the LED display will no longer light up, serving as a warning to insert fresh batteries as soon as possible. When battery capacity is no longer sufficient, the shutter will not operate.





#### Battery holder

Fresh spare batteries can be stored in the battery holder threaded on the camera strap (p.9). To insert batteries, form a loop as shown above then drop them in. Slide the holder off the strap to remove batteries.

#### NOTE

- If the camera is not to be used for more than two weeks, it is advisable to remove the batteries (especially old ones).

#### Cold-weather operation

Since batteries tend to lose power as they become colder, always use fresh batteries and keep a spare set with you when using your camera in cold weather. For prolonged cold-weather use (approx.  $0^{\circ}\text{C}$  or lower), silver-oxide batteries are recommended. Battery capacity will be restored as temperatures rise.

#### NOTE

- If a lithium battery is used below  $0^{\circ}\text{C}$ , the camera may not operate.
- Never transfer the camera directly from low to high temperatures as condensation may form inside and prevent normal operation.



## FILM AND FILM SPEED

The X-700 uses standard 35mm cartridge film. If you are not already familiar with the many types available, you may want to experiment to find one or more that give pleasing results for subjects you like to photograph or for special situations.

The ISO film speed (incorporating ASA and DIN numbers) indicates the film's sensitivity to light. The first part of the ISO number (equivalent to ASA number) is marked on the X-700's film-speed ring. Each time this number doubles (e.g., from 25 to 50, 50 to 100), the required exposure is halved. Such a change is called one "stop".

Though selecting a high-speed film will allow you to take pictures when there is less light, such films in general may produce a grainier image.



Setting film speed

Lift up on the film-speed ring and turn it until the proper ASA number appears centered in the film-speed window and locks in that position when the ring is released. Marks between numbered graduations indicate speeds shown in the table at right.

ASA		DIN	ASA		DIN
25	•	15	250	•	25
32	•	16	320	•	26
40	•	17	400	•	27
50	•	18	500	•	28
64	•	19	640	•	29
80	•	20	800	•	30
100	•	21	1000	•	31
125	•	22	1250	•	32
160	•	23	1600	•	33
200	•	24			

### CAUTION

• Film should be stored in a cool, dry, dark place before use and exposed before the expiration date printed on the box.



A handy ISO (DIN-ASA) table, with a surrounding memo holder for keeping the film-box end as a reminder of the film type and number of exposures, is located on the camera back.

## LOADING AND ADVANCING FILM

### Loading film

Before opening the camera back, confirm that there is no film inside that could be damaged by light if the back is opened, by checking that:

- No red is visible in the Safe Load Signal (see p. 20).
- Rewind crank can be freely rotated clockwise many times without pushing rewind button.

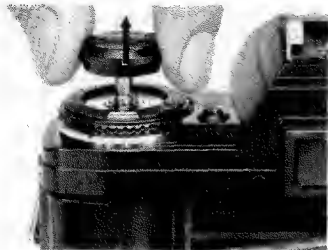
Since the frame counter advances each time the shutter is cocked even if no film is inside, the camera may be empty even when the index does not point to "S".

Prior to loading film, set the film speed (see previous page) and turn the main switch on (p. 13).

### CAUTIONS

- Film should be handled and loaded in subdued light — at least shaded from direct sunlight by your body.
- Do not touch any parts or areas shown in blue below.





1. With the case off, pull up on the back-cover release knob until the camera back springs open. Gently blow away any dust or other particles inside with a blower brush.

#### NOTE

- When loading film in a dark place or with the lens cap on, loading will be easier if the mode selector is not set at "P" or "A".



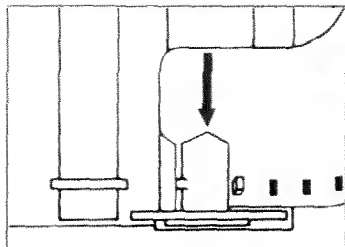
2. Leaving the knob pulled out, position a 35mm film cartridge as shown with the projecting spool down. Then push the knob all the way in, rotating it slightly if necessary.

#### NOTE

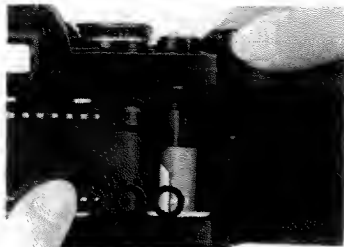
- If the film-advance lever stops at the end of a full stroke during the following steps, release the shutter and continue (main switch must be on).



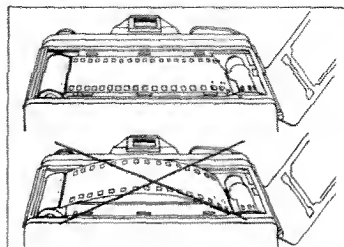
3. Pull out enough film leader to just reach the take-up spool, then insert the end into a slot on the left (as shown above), making sure it does not protrude from another slot. A hole in the film should be lined up with the tooth on the take-up spool, and the sprocket teeth should be engaged with holes at the bottom of the film.



If you find it easier to hold the film leader in your right hand, insert the film as shown in the diagram above, making sure the take-up spool tooth is properly engaged with a hole.



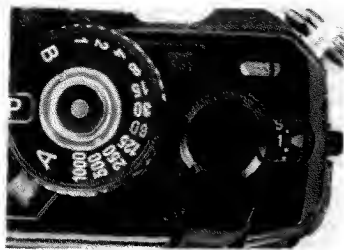
4. With the film held against the sprocket by your left hand, slowly operate the film-advance lever until the film is wound firmly around the take-up spool, the sprocket teeth are engaged with holes on both edges of the film, and the slack in the film is taken up.



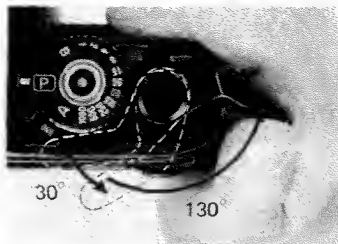
5. After making sure the film is taut, close the camera back by pushing in on it until it clicks shut. A red "S" should now appear opposite the index in the frame counter.

#### CAUTION

- Slack should be taken up by advancing, not rewinding, the film. If you rewind the slack into the cartridge then later advance the film to "1", the first frame may have already been exposed to light.



6. Advance film, release shutter, and advance film — until the index points to "1". A red bar should now appear at far left in the Safe Load Signal, indicating film is loaded and advancing properly. (If it does not appear or swings far to the right, repeat steps 3 to 6.) The camera is now ready for taking the first picture, provided film speed is set.



#### Film-advance lever

To allow swinging the film-advance lever out from the camera body so the right thumb will fit comfortably behind it, the lever has  $30^\circ$  of unengaged movement. As the lever is moved an additional  $130^\circ$ , the film and frame counter advance. When it stops at the end of the full  $160^\circ$  stroke, the shutter is cocked for the next exposure.

#### Safe Load Signal/Frame counter

As you continue taking pictures and advancing film, the red bar in the Safe Load Signal gradually moves to the right and the rewind crank rotates counterclockwise, indicating proper film advance.

Never force the lever when it resists further movement at the end of the film, which may be somewhat before or after the common film lengths (12, 20, 24, 36 exposures) shown in red in the frame counter. The frame counter stops advancing after 36 exposures.

## REWINDING AND UNLOADING FILM



1. To rewind the film, remove the camera's case if on, then press the rewind release on the camera bottom.



2. Unfold the rewind crank and turn it in the direction of the arrow until the red bar in the Safe Load Signal moves out of the window to the left. Near the end you will feel tension on the film increase then completely disappear, and the crank will then turn freely.

### CAUTION

- Never open the camera back when there is any red still visible in the Safe Load Signal.



3. When you are certain that the exposed film is completely re-wound into the cartridge, pull up on the back-cover release knob to open the back, then remove the cartridge.

### CAUTION

- Exposed film should be kept in a cool, dry, dark place and developed as soon as possible.



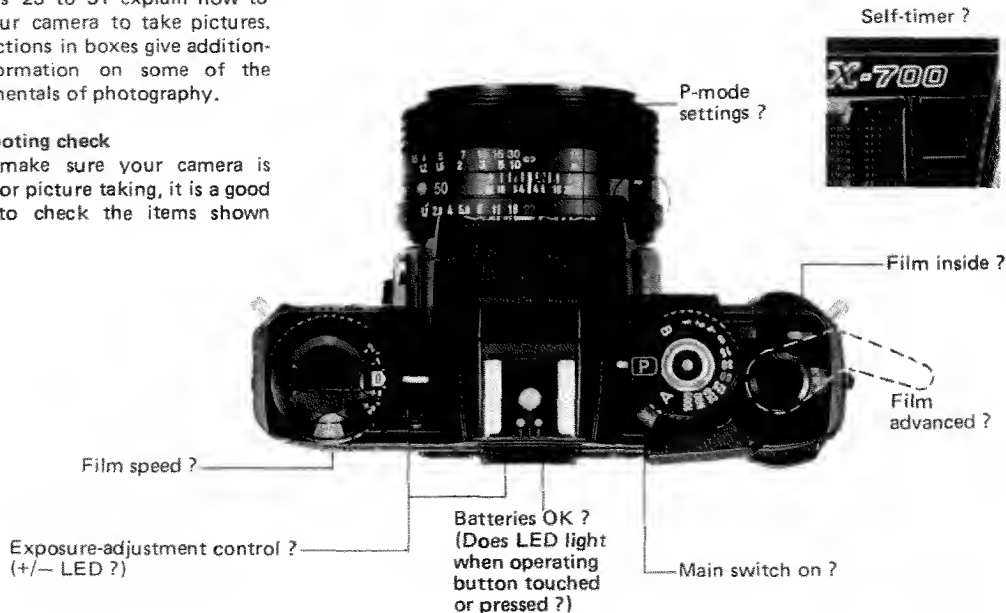


## TAKING PICTURES WITH YOUR X-700

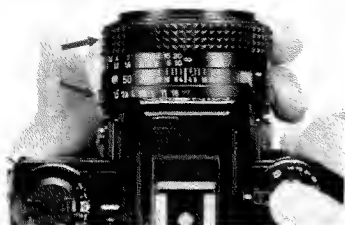
Pages 23 to 51 explain how to use your camera to take pictures. The sections in boxes give additional information on some of the fundamentals of photography.

### Pre-shooting check

To make sure your camera is ready for picture taking, it is a good habit to check the items shown here.



## EXPOSURE CONTROL WITH THE X-700



If you hold the camera as shown, you can easily operate most controls without removing it from your eye.

### LEFT HAND

Thumb: focusing grip, aperture ring, or preview button

Index: focusing grip

Middle: aperture ring

### RIGHT HAND

Thumb: film-advance lever

Index: main switch, mode/shutter-speed selector (and P/A-lock release), or operating button

24 Middle: AE lock or minimum-aperture lock

Your X-700 can be used in any of three exposure-control modes, as summarized below and explained in more detail in the following sections.

### Programmed auto-exposure (AE) mode

The X-700's P mode is ideal for general picture taking when all you want to do is compose, focus, and shoot. With the camera set at "P" and an MD lens at its minimum aperture, the X-700's program selects the aperture and fastest practicable shutter speed as light dims, giving audible beeps (if desired) to guard against blur from subject/camera movement.

### Aperture-priority AE mode

When you want to control the depth of field by setting a certain aperture, or for auto-exposure control with virtually any Minolta SLR lens or accessory, use the X-700 in A mode. The camera will automatically set the stepless shutter speed to yield proper exposure for the aperture you set.

### Metered/full-manual mode

The X-700's M mode can be used when a special photographic effect requires a fixed speed, or in situations where the brightness difference between the subject area and the rest of the frame exceeds the available range of exposure adjustment in P or A mode or where the AE lock cannot be readily used.



**Mode/shutter-speed selector and P/A-lock release**

The mode/shutter-speed selector can be rotated continuously in either direction but locks at "P" and "A" to prevent accidental movement. Release the selector by pressing the P/A-lock release, then turn it until it clicks or locks into place at the desired position.



**Minimum-aperture lock**

In P mode, it is recommended to lock the lens at its minimum aperture to prevent accidental movement. To do so, line up the green f-number (f/16, f/22, or f/32, depending on lens) with the index, then pull the slider toward the camera. To release the lock for A mode or M mode, push the slider away from the camera body.

#### NOTE

- Only new-type MD lenses have the lock.



**Eyepiece cap**

If the shutter is released without the eyepiece being shielded by your head (such as in remote or self-timer operation, etc.) when the camera is used in P or A mode or at "B", slide the eyepiece cap onto the frame around the eyepiece to prevent unwanted light from affecting the meter reading and exposure.

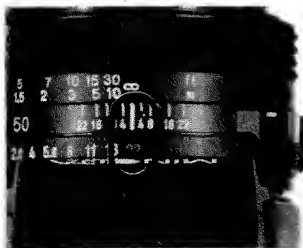
The eyepiece cap can be threaded on the camera strap to keep it handy for use.

## PROGRAMMED AUTO-EXPOSURE MODE (P mode)

### Basic settings



Set mode selector at "P".



Set and lock lens at minimum aperture (green figure).

### Taking pictures in P mode

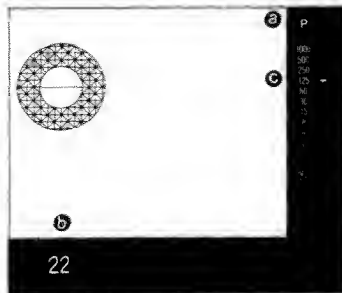
After you have set the camera as shown at left, it will automatically set the shutter speed and aperture for you (see program graph on p.30). All you need do before releasing the shutter is compose, focus, and check the viewfinder as follows:

- Is the over-range LED blinking? If so, use a neutral-density (ND) filter or reduce the light level if possible.
- Is an LED on in the danger zone for hand-holding (usually 1/30 sec. or slower — see p. 44)? Or does the slow-shutter-speed warning beep when the main switch is at "ON II" and you touch the operating button? If so, use a suitable camera-support method (p. 46) or a flash (p. 50).

- Is an LED on or blinking outside the applicable range in the table on page 31? If so, exposure may be incorrect.

### NOTES

- If the lens is not set at minimum aperture, the "P" will blink as a warning. Although exposure will still be correct unless an over- or under-range LED blinks, the program's range will be limited so that it cannot accommodate brighter subjects.
- In some situations you may want to use the AE-lock or exposure-adjustment control (pp. 34 and 35).
- If your head is not shielding the eyepiece from light when the picture is taken, use the eyepiece cap (p.25).

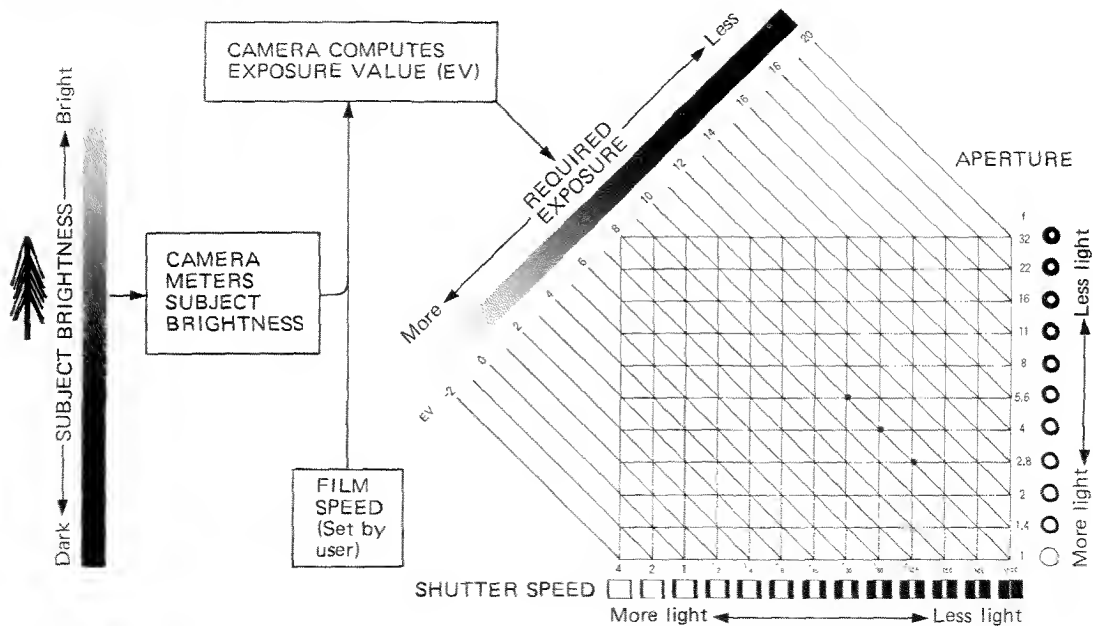


**Viewfinder shows:**

- Ⓐ Green "P" = Programmed AE mode in use  
(Blinks if lens is not set at minimum aperture)
- Ⓑ Minimum aperture (green)  
NOT THE TAKING APERTURE
- Ⓒ Stepless shutter speed set by camera  
(If two LEDs light, speed is in between.)



# FUNDAMENTALS OF EXPOSURE



When you take a picture, light from the subject passes through the lens and open shutter, striking the film to form an image. To obtain correct exposure for the subject's brightness and film being used, the aperture (size of the diaphragm opening) and shutter speed (length of time the shutter curtain is kept open) must be controlled.

As indicated by the aperture diagram next to each f-number in the figure, large f-numbers (e.g.,  $f/16$  and  $f/8$ ) represent small apertures, and small f-numbers (e.g.,  $f/2$  and  $f/1.4$ ) represent large apertures. Each standard f-number setting (e.g.,  $f/8$ ) lets in twice as much light as the next numerically larger one ( $f/11$ ) and half as much as the next smaller one ( $f/5.6$ ). This difference in exposure between standard f-numbers is called one "stop".

Shutter speeds are expressed in fractions of a second (generally the reciprocals of numbers shown on shutter-speed scales) and in seconds. Each standard shutter speed (e.g.,  $1/60$  sec.) allows light to strike the film twice as long as the next faster one ( $1/125$ ) and half as long as the next slower one ( $1/30$ ). This difference between standard shutter speeds is also called one "stop".

Total exposure on the film is determined by the combination of aperture and speed. Using the next smaller f-number (i.e., giving one stop more exposure) will balance using the next faster shutter speed (i.e., giving one stop less exposure), and so on. A great range of combinations (e.g.,  $f/5.6$  at  $1/30$ ,  $f/4$  at  $1/60$ ,  $f/2.8$  at  $1/125$ , etc., all of which fall on the same diagonal line) will thus yield the same total exposure.

The diagonal lines correspond to exposure values (EV); all of the aperture/shutter-speed combinations indicated by a given line will produce the same exposure. At any specific film speed, the EV increases by one each time the subject brightness doubles, and thus the required exposure will decrease by one stop. On the other hand, when the EV is one unit lower (i.e., when the subject is only half as bright), the exposure must be increased one stop.

The film-speed-coupled metering system of the camera measures the brightness of the subject and computes the EV needed for proper exposure, which is then used for setting the combination of aperture and shutter speed.

## COUPLED RANGES AND PROGRAM GRAPH

As shown in the graph at right, the X-700's program is designed to maintain the fastest practicable shutter speed as light dims. The graph gives you a general idea of which aperture is being set for a given LED-indicated shutter speed. For example, if the "125" LED lights, the aperture will be approximately  $f/2.8$  (for a 50mm  $f/1.4$  lens, at ISO 100/21°).

The accurate working range of shutter-speed and aperture combinations at ISO 100/21° with an  $f/1.4$  lens is EV 1 ( $f/1.4$ , 1 sec.) to EV 18 ( $f/16$ , 1/1000 sec.). At ISO 25/15°, the range is EV -1 to 16; at ISO 400/27° it is EV 3 to 18.

The maximum EV depends on the minimum aperture of the lens: for  $f/16$  it is EV 18; for  $f/22$ , EV 19; for  $f/32$ , EV 20.

- a Program for 50mm  $f/1.7$  lens set at minimum aperture of  $f/22$
- b Program for 50mm  $f/1.4$  lens set at minimum aperture of  $f/16$
- c Program when lens is set at  $f/5.6$  rather than minimum aperture

